

# A case of perilymphatic fistula in blunt head injury

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*Emerg Med J* 2005;22:921. doi: 10.1136/emj.2004.020495

Dizziness is a common symptom following blunt head injury. This is usually attributed to the "post-concussive" syndrome. Here we present a patient whose symptoms following head injury were a result of him having developed a perilymphatic fistula.

A 39 year old man presented to the emergency department having been involved in a motorcycle accident the previous day. He had lost control of his motorcycle while slowing down at a junction and had skidded across a grass verge on his left side. He felt fine afterwards and did not attend the hospital. By the next day, he had developed dizziness and felt unsteady on his feet.

Apart from the patient experiencing dizziness on standing, examination was unremarkable, with normal auroscopy and no focal neurological abnormality. Skull radiographs revealed no vault fracture. Because of his ongoing symptoms, he was admitted for inpatient observation.

By review the following morning, he had developed obvious cerebellar signs. He had past pointing and dysidiadochokinesia, which were worse on the left along with nystagmus on left lateral gaze. Computed tomography scan of his brain was normal.

His cerebellar signs persisted and a magnetic resonance imaging scan the following day was also normal. Due to suspicion of possible labyrinthine injury, an ear, nose and throat (ENT) review was arranged. Both Rinne's and Weber's tests were normal. However, he had a positive fistula test on the left, also weakly positive on the right. Formal audiogram was normal.

A diagnosis of perilymphatic fistula was made and the patient was transferred to the care of the ENT team. He was managed conservatively as an inpatient, with an improvement in his symptoms and signs over a week.

## DISCUSSION

A perilymphatic fistula is an abnormal communication between the middle and inner ear, which allows the escape of perilymphatic fluid into the middle ear. This leakage of fluid leads to the development of vestibular disturbance, with or without hearing loss.

The incidence of dizziness after mild head injury has been reported as being as high as 75%, with the incidence of hearing loss up to 50%. The diagnosis of postconcussive syndrome is frequently attributed to these patients after

normal radiological investigation. There have been several reported episodes of patients labelled as postconcussive syndrome being diagnosed with perilymphatic fistula months after a blunt head injury, and requiring surgery because of continuing symptoms.

Perilymphatic fistulae have many causes, including blunt head trauma, Valsalva manoeuvres, vigorous exercise, stapes surgery, and barotraumas. Symptoms and signs include positional vertigo, exercise and Valsalva induced vertigo, positional nystagmus, and hearing loss. The diagnosis should be considered in patients with ataxia and dizziness, with or without hearing loss, in the presence of normal radiological investigations.

The diagnosis is confirmed by a combination of specialist investigations such as an audiogram and a fistula test, performed by applying positive and negative pressure to the intact tympanic membrane. Positive results include the elicitation of nystagmus or the onset of disequilibrium. Electrocochleography can also be informed. This is a method of recording the stimulus related potentials of the cochlea and auditory nerve.<sup>1</sup>

Perilymphatic fistula requires urgent referral to the ENT team. The patient will be managed with bed rest with the head elevated. Surgery is considered if the symptoms progress or fail to settle after 1–2 weeks.

Although uncommon, perilymphatic fistula must be considered in the differential diagnosis of a patient presenting with dizziness following head injury, especially if associated with hearing loss and normal radiological investigations.

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Competing interests: none declared

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Accepted for publication 19 October 2004

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